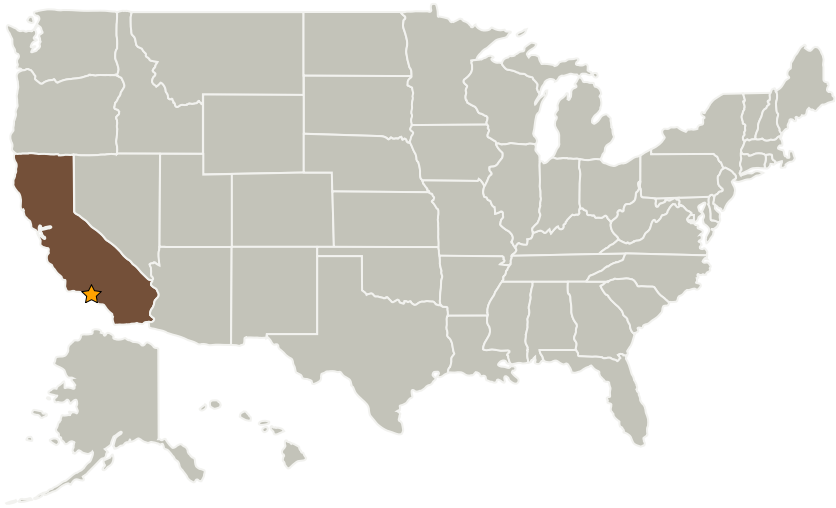
Novel Micro-Capillary Electrochromatography for Mars Organic Detector, Phase I

Completed Technology Project (2008 - 2008)

Project Introduction

Los Gatos Research proposes to develop a powerful new technology - next generation Micro-Capillary Electrochromatography -- a high performance and low power consumption microfluidic sample separation device suited for separating organic molecules as signatures of past and present life on Mars. In particular, these micro-devices will be engineered for integration with NASA's Mars Organic Detector. For the Phase I effort, we will design, construct, and test the micro-CEC chips. The Phase I research will address issues related to performance as well as production methods that can be used for the technology, as well as designing and determining the integrated micro-device and the Phase II prototype. In the Phase II effort, we will integrate the micro-CEC prototypes with the existing micro-CE analyzers as a dual micro-CE/micro-CEC system capable of separating all neutral and charged organic molecules as targeted by Urey, thus provide new capabilities for NASA sample separation instrumentation development.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Jet Propulsion Laboratory (JPL)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Jet Propulsion Laboratory(JPL)	Lead Organization	NASA Center	Pasadena, California
Los Gatos Research	Supporting Organization	Industry	Mountain View, California

Primary U.S. Work Locations
California

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Hong Jiao

Technology Areas

Primary:

- TX14 Thermal Management Systems
  - TX14.1 Cryogenic Systems
    - TX14.1.3 Thermal Conditioning for Sensors, Instruments, and High Efficiency Electric Motors